

AMENDMENTS TO THE DRAWINGS

The attached sheet(s) of drawings include changes to Fig(s). 5B and replace the original sheet(s) including such figures.

Attachment(s): Replacement Sheet including amended Fig. 5B.

### REMARKS

This paper is responsive to a Non-Final Office action dated September 22, 2006. Claims 1-20 and 22-54 were examined.

#### Specification

The specification is amended to change the reference numeral of top plate 552 of FIG. 5B to top plate 553.

#### Drawings

Figure 5B is amended to change the reference numeral of top plate 552 to top plate 553.

#### Claim Rejections Under 35 U.S.C. § 112

Claims 9 and 32 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Claims 9 and 32 are canceled.

#### Claim Rejections Under 35 U.S.C. § 102

Claims 1-4, 6, 7, 9, 16-20, 22-27, 29, 30, 32, and 39-54 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U. S. Patent Application Publication No. 2001/0013821 to Huang et al (hereinafter, "Huang").

Claim 1 is amended to incorporate the limitations of claims 46 and 47. Regarding amended claim 1, Applicants respectfully maintain that Huang, alone or in combination with other references of record, fails to teach or suggest that

the electrically conductive plate is formed by a  
plurality of continuous conductive patterns, each of  
the continuous conductive patterns being substantially  
concentric with respect to the aperture,

as required by amended claim 1. Huang teaches a

hollow square 41 which has core plug 22 at its center. Connecting opposing inner edges of the hollow square at their centers are cross members 42 and 43. This can also be seen in FIG. 4b which is an isometric view of FIG. 4a. These parts, 41, 42, and 43, have a rectangular cross-section that is between about  $10$  and  $10^6$  Angstroms high and between about 0.5 and 50 microns wide. This provides a low reluctance path for the magnetic flux lines of the inductor, thereby increasing its inductance value.

Paragraph 0038. The rectangular cross-sections formed by cross members 42 and 43 of Huang are not substantially concentric, as required by amended claim 1, and no other portion of Huang, or other references of record, provides the missing disclosure. Accordingly, Applicants respectfully request that the rejection of claim 1 and all claims dependent thereon, be withdrawn.

Claims 20 and 22 are canceled.

Claim 23 is amended to recite an apparatus and to incorporate the limitations of claim 48, thereby putting claim 48 into independent form. Regarding amended claim 23, Applicants respectfully maintain that Huang, alone or in combination with other references of record, fails to teach or suggest that

individual ones of the electrically conductive links  
are coupled to each other by an electrically  
conductive link perpendicular to the individual ones  
of the electrically conductive links,

as required by amended claim 23. Huang teaches a

hollow square 41 which has core plug 22 at its center. Connecting opposing inner edges of the hollow square at their centers are cross members 42 and 43. This can also be seen in FIG. 4b which is an isometric view of FIG. 4a. These parts, 41, 42, and 43, have a rectangular cross-section that is between about  $10$  and  $10^6$  Angstroms high and between about 0.5 and 50 microns wide. This provides a low reluctance path for the magnetic flux lines of the inductor, thereby increasing its inductance value.

Paragraph 0038. Cross members 42 and 43 of hollow square 41, which intersect at 22 of Huang, fail to teach or suggest individual ones of the electrically conductive links are coupled to each other by an electrically conductive link perpendicular to the individual ones of the electrically

conductive links, as required by amended claim 23. Accordingly, Applicants respectfully request that the rejection of claim 23 and all claims dependent thereon, be withdrawn.

Claim 24 is amended to incorporate limitations of claims 53 and 54. Regarding amended claim 24, Applicants respectfully maintain that Huang, alone or in combination with other references of record, fails to teach or suggest that

the electrically conductive plate is formed by a  
plurality of continuous conductive patterns, each of  
the continuous conductive patterns being substantially  
concentric with respect to the aperture,

as required by amended claim 24. Huang teaches a

hollow square 41 which has core plug 22 at its center. Connecting opposing inner edges of the hollow square at their centers are cross members 42 and 43. This can also be seen in FIG. 4b which is an isometric view of FIG. 4a. These parts, 41, 42, and 43, have a rectangular cross-section that is between about  $10$  and  $10^6$  Angstroms high and between about 0.5 and 50 microns wide. This provides a low reluctance path for the magnetic flux lines of the inductor, thereby increasing its inductance value.

Paragraph 0038. The rectangular cross-sections formed by cross members 42 and 43 of Huang are not substantially concentric, as required by amended claim 24, and no other portion of Huang, or other references of record, provides the missing disclosure. Accordingly, Applicants respectfully request that the rejection of claim 24 and all claims dependent thereon, be withdrawn.

Claim 42 is amended to incorporate limitations of claims 43 and 44. Regarding amended claim 42, Applicants respectfully maintain that Huang, alone or in combination with other references of record, fails to teach or suggest that

the electrically conductive plate is formed by a  
plurality of continuous conductive patterns, each of  
the continuous conductive patterns being substantially  
concentric with respect to the aperture,

as required by amended claim 42. Huang teaches a

hollow square 41 which has core plug 22 at its center. Connecting opposing inner edges of the hollow square at their centers are cross members 42 and 43. This can also be seen in FIG. 4b which is an isometric view of FIG. 4a. These parts, 41, 42, and 43, have a rectangular cross-section that is between about  $10$  and  $10^6$  Angstroms high and between about 0.5 and 50 microns wide. This provides a low reluctance path for the magnetic flux lines of the inductor, thereby increasing its inductance value.

Paragraph 0038. The rectangular cross-sections formed by cross members 42 and 43 of Huang are not substantially concentric, as required by amended claim 42, and no other portion of Huang, or other references of record, provides the missing disclosure. Accordingly, Applicants respectfully request that the rejection of claim 42 and all claims dependent thereon, be withdrawn.

Claims 43 and 44 are canceled.

Claims 46, 49, and 51 are amended to depend from claim 23.

Claim 52 is canceled.

Claims 53 and 54 are amended to depend from claim 55.

New claim 55 is added, thereby putting claim 3 in independent form. Regarding new claim 55, Applicants respectfully maintain that Huang, alone or in combination with other references of record, fails to teach or suggest that

the aperture has an approximate diameter determined by adding an approximate outer diameter of the inductor to an approximate inner diameter of the inductor,

as required by new claim 55. Although the Office states that the aperture of FIG. 4a of Huang “reasonably shows” an aperture having an approximate diameter as claimed in new claim 55, Applicants maintain that Huang fails to expressly teach that the aperture has an approximate diameter determined by adding an approximate outer diameter of the inductor to an approximate inner diameter of the inductor. Applicants respectfully point out that “A single prior art

reference anticipates a patent claim if it expressly or inherently describes each and every limitation set forth in the patent claim.” Trintec Indus., Inc. v. Top-U.S.A. Corp., 295 F.3d 1292; 63 U.S.P.Q.2d (BNA) 1597 (Fed. Cir. 2002) (emphasis added) (citing Verdegaal Bros. v. Union Oil Co. of Cal., 814 F.2d 628, 631, 2 U.S.P.Q.2d (BNA) 1051, 1053 (Fed. Cir. 1987)). However, while a teaching may be express or inherent, inherency is a stringent standard.

To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 U.S.P.Q.2D (BNA) 1746, 1749 (Fed. Cir. 1991). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Id.* at 1269, 20 U.S.P.Q.2D (BNA) at 1749 (quoting *In re Oelrich*, 666 F.2d 578, 581, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981)).

See *In re Robertson*, 169 F.3d 743, 745; 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999); MPEP § 2112.IV. Applicants disagree that it is inherent for the apparatus of Huang to practice the claim. For example, there is no teaching or suggestion that hollow square 41 of Huang must (or does) have an approximate diameter determined by adding an approximate outer diameter of the inductor to an approximate inner diameter of the inductor. To be inherent in having that approximate diameter, hollow square 41 of Huang must by necessity have an approximate diameter determined by adding an approximate outer diameter of the inductor to an approximate inner diameter of the inductor. It is not. Since Huang does not disclose or suggest the recited limitation and no other art of record adds the missing disclosure, accordingly, Applicants respectfully request that new claim 55, and all claims dependent thereon be allowed.

### Claim Rejections Under 35 U.S.C. § 103

Claims 5, 15, 28, and 38 stand rejected under § 103(a) as being unpatentable over Huang. Applicants believe that claims 5, 15, 28, and 38 depend from allowable base claims and are allowable for at least this reason.

Claims 8, 10-14, 31, 33, and 34-37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Huang in view of U. S. Patent No. 6,600,208 to Brennan et al. (hereinafter, "Brennan"). Applicants believe that claims 8, 10-12, 31, 33, and 34-37 depend from allowable base claims and are allowable for at least this reason.

Regarding claim 13, Applicants respectfully maintain that the Office has failed to establish a *prima facie* case of obviousness. See MPEP § 2143. The Office fails to provide a reference that teaches or suggests that

the top plate is formed in a redistribution layer,

as required by claim 13. The Office states that the term “redistribution layer” reads on any layer of an integrated circuit since this term does not set forth any particular structure. Applicants respectfully point the Examiner to at least paragraphs 1041-1043 of the specification, which state:

Redistribution layers may be any layers formed on the integrated circuit used to route electrical connections between contact pads on an IC die and a location of a package contact. This may include depositing and patterning metal layers to transform an existing input/output layout into a pattern that satisfies the requirements of a solder bump design.

The redistribution layers are typically formed above a passivation layer, i.e., a layer formed on an integrated circuit to provide electrical stability by protecting the integrated circuit from moisture, contamination particles, and mechanical damage. The passivation layer may include silicon dioxide, silicon nitride, polyimide, or other suitable passivation materials. Redistribution layers are typically formed above integrated circuit bonding pads. These pads, typically coupled to an electronic device formed in the integrated circuit, may include aluminum, copper, titanium, or other suitable material. However, redistribution layers may include additional dielectric and conductive layers formed on an integrated circuit die in the absence of a passivation layer or bonding pads.

Redistribution layers typically have thicknesses substantially greater than the thicknesses of typical dielectric and conductive layers formed on an integrated circuit die. For example, a typical conductive layer in an integrated circuit is less than 1µm thick and corresponding dielectric layers

are also less than 1 $\mu$ m thick. However, conductive layers in an exemplary redistribution layer are at least 2 $\mu$ m thick and corresponding dielectric layers are at least 5 $\mu$ m thick. In another embodiment, the dielectric layers are at least 15 $\mu$ m thick. Redistribution dielectric layers may include silicon nitride, oxynitride, silicon oxide, benzocyclobutene (BCB), polyimide, or other suitable materials. Redistribution conductive layers may include aluminum, copper, or other suitable materials.

Applicants respectfully maintain that the references of record fail to teach or suggest that the top plate is formed in a redistribution layer as required by claim 13. Accordingly, Applicants respectfully request that the rejection of claim 13 and all claims dependent thereon, be withdrawn.

Regarding claim 14, Applicants respectfully maintain that the Office has failed to establish a *prima facie* case of obviousness. See MPEP § 2143. The Office fails to provide a reference that teaches or suggests that

the top plate is formed in a package substrate,

as required by claim 14. Applicants respectfully disagree that a plate formed in an integrated circuit die that is encapsulated by a package is the same as a plate that is formed in a package substrate, as implied by the Office. Applicants respectfully maintain that the references of record fail to teach or suggest that the top plate is formed in a package substrate, as claimed. Accordingly, Applicants respectfully request that the rejection of claim 14 and all claims dependent thereon, be withdrawn.

#### Additional Remarks

Claims 27, 29, and 30 are amended to correct typographical errors.

Claims 47, 50, and 54 are amended to clarify claim language.

In summary, all claims are believed to be allowable over the art of record, and a Notice of Allowance to that effect is respectfully solicited. Nonetheless, if any issues remain that could be



more efficiently handled by telephone, the Examiner is requested to call the undersigned at the number listed below.

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Respectfully submitted,



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